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Determination of malnutrition status in palliative care patients

Palyatif bakım hastalarında yetersiz beslenme durumunun belirlenmesi

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ABSTRACT

Aim: The study was carried out in the descriptive form in order to determine the malnutrition status in palliative care patients.

Material and Method: The research was conducted in the palliative care unit of a hospital in the east of Turkey between May 2019 and December 2019. Since the entire population was aimed to be included in the research, 123 palliative care patients were reached without calculating the sample size and using any sampling method. In order to evaluate the nutritional status of the patients, patient introductory information form and Mini Nutritional Assessment Test (MNA) were used. In the evaluation of the data, descriptive statistics, Kruskal-Wallis Test, Chi-Square and Mann-Whitney U test were used. All the findings were evaluated at $p<0.05$ significance level.

Results: The mean age of the patients was 71.88±14.16, and 51.2% of them were male, 95.9% were married, 39.8% had cancer and 45.5% were nourished orally. There was a risk of malnutrition in 89.4% of the patients and malnutrition development risk in 7.3%. The presence of malnutrition was found to be higher in cancer patients compared with Alzheimer's patients, and in those nourished via percutaneous endoscopic gastronomy, nasogastric catheter and total parenteral nutrition compared to the ones nourished orally ($p<0.05$).

Conclusion: The results obtained from this study showed that it is very important, in palliative care patients with a high risk of malnutrition development, to follow the nutritional status closely and to arrange nutritional supportive treatment early so that the patients can go through a good process in the last days of their lives.

Keywords: Nutrition, patient, malnutrition, palliative care

ÖZ

Amaç: Palyatif bakım hastalarında malnütrisyon durumunu saptamak amacıyla tanımlayıcı olarak gerçekleştirildi.

Gereç ve Yöntem: Araştırma Türkiye'nin doğusunda yer alan bir hastanenin palyatif bakım ünitesinde Mayıs 2019-Aralık 2019 tarihleri arasında gerçekleştirildi. Evrenin tümünün araştırmaya alınması hedeflendiği için örneklem büyüklüğü hesaplaması yapılmayıp herhangi bir örnekleme yöntemi kullanılmadan 123 palyatif bakım hastasına ulaşıldı. Hastaların beslenme durumunu değerlendirilmek için, hasta tanıtıcı bilgi formu, Mini Nütrisyonel Değerlendirme Testi (MNA) kullanıldı. Verilerin değerlendirilmesinde tanımlayıcı istatistikler, ANOVA, Kruskal Wallis Testi, Ki-Kare ve Mann Whitney U testi kullanıldı. Tüm bulgular $p<0,05$ anlamlılık düzeyinde değerlendirildi.

Bulgular: Yaş ortalaması 71,88± 14.16 olan hastaların %51,2'si erkek, %95,9'u evli, %39,8'si kanser, %45,5'i oral yolla beslenmekteydi. Hastaların %89,4'ünde malnütrisyon, %7,3'ünde malnütrisyon gelişme riski olduğu saptandı. Alzheimer hastaları ile kıyaslandığında kanser hastalarında ve beslenme şekli oral olanlar ile kıyaslandığında perkütan endoskopik gastronomi, nazogastrik sonda ve total parenteral beslenme ile beslenenlerde malnütrisyon varlığının daha yüksek olduğu saptandı ($p<0.05$).

Sonuç: Bu çalışmadan elde edilen sonuçlar, malnütrisyon gelişme riski yüksek olan palyatif bakım hastalarında, beslenme durumunun yakından takip edilmesinin ve nütrisyon destek tedavisinin erken dönemde düzenlenmesinin hastanın yaşamının son günlerinde iyi bir süreç geçirmesi açısından oldukça önemli olduğunu göstermiştir.

Anahtar Kelimeler: Beslenme, hasta, malnütrisyon, palyatif bakım

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INTRODUCTION

Palliative care is an approach which aims to increase the quality of life of patients by detecting and treating the symptoms of the patients, who were diagnosed with any life-threatening disease, associated with the disease process in the early period (1). The purpose of palliative care units is to enable terminal period patients to spend their remaining lives more comfortably (2,3). In these patients, adequate and balanced nutrition is one of the basic needs to maintain vital functions. Adequate and balanced nutrition, which is quite effective in protecting health, preventing and treating diseases, can increase the quality of life and sense of well-being, and help alleviate the disturbing symptoms that occur at the end of life (4–6).

Adequate nutrition is important not only to fulfill physiological needs, but also due to its psychological, spiritual, social and cultural benefits for patients and caregivers. Addressing these beneficial aspects of nutrition is of great importance in the palliative environment (5). However, as patients who require palliative care have different diseases, various conditions and prognoses, it is difficult for patients to have a balanced diet due to the negative effects of the disease and treatments (7,8). Some symptoms such as pain, nausea, wounds on the oral mucosa, diarrhea and vomiting while eating may cause impaired nutrition of patients receiving palliative care, and consequently, malnutrition may develop in these patients (8). Malnutrition, which is a significant problem particularly for palliative care units, negatively affects the course of the disease by causing loss of body mass, further decrease of the immune system and insufficiency of organ-system functions, may extend the length of hospital stay, decrease the quality of life and increase the risk of death (8–10). The risk of developing malnutrition differs depending on the diagnosis, treatment method, age and gender of the patient (8). Specifically with the progression of the disease, patients are generally malnourished, and it is asserted that 20% of the patients die from the effects of malnutrition rather than the disease itself (4). Therefore, the risk of malnutrition should be identified early in the patient group in the palliative care unit, and early nutritional support should be initiated by providing patients and families with adequate nutritional training and counseling especially in the early period for ideal patient management (3).

The findings of a study reveal that the malnutrition experienced by palliative care patients cannot be limited to only the physical aspect. Malnutrition affects not only the bodies of the patients but also their psychological and social well-being (11). However, there is a lack of literature with respect to this aspect of malnutrition in this patient population (1,7,12). Furthermore, nutritional status, which is very important for palliative care patients, is perceived as a burden of care by healthcare professionals and is usually ignored (5,7,13,14).

Therefore, the main purpose of the study is to specify malnutrition status in palliative care patients, to review the current data related to nutrition and to contribute to the limited current literature.

MATERIAL AND METHOD

Ethical Aspect of the Study

This study was approved by the university /local human research ethics committee and all procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Before the research, ethical approval (Permission Granted: 12.03.2019, Decision No: E.4480) and institutional permission from the hospital where the research was conducted were obtained. Verbal and written consent was obtained from the patients included in the study by giving the patients included in the research necessary explanations.

Desing and Sample

The research was carried out in the descriptive form in the Palliative Care Unit of a hospital in the east of Turkey between May 2019 and December 2019. Since the whole population was aimed to be included in the research, the sample size was not calculated, and no sampling method was used. In the unit, 320 patients received palliative care service between the dates the study was carried out. Because it was not possible to evaluate patients who could not communicate verbally and were unconscious (n=116) and those who got 12 points or higher from the first 6 questions of the MNA scale (n=81) were not included in the study. The study was completed with the participation of 123 palliative care patients. The data were collected by the researcher between the aforementioned dates in the palliative care unit in the patient rooms by using the face-to-face interview method and data collection tools. The interviews took about 15-20 minutes.

Data Collection Tools

Patient Introductory Survey Form: This diagnostic form, which was prepared by the researcher in line with the literature in order to determine the socio-demographic characteristics, disease characteristics (diagnosis, duration, etc.) and diets of the patients, consists of a total of 10 questions (1,5,8,14,15).

Mini Nutritional Assessment Test (MNA): Developed by Vellas et al in 1997, MNA is a short diagnostic tool used to diagnose the nutritional status of patients staying in care units, care houses and nursing homes for a long time (16,17). This diagnostic tool, whose validity and reliability study has been conducted in different countries and several studies, has been shown to be a valid and reliable screening tool for the identification of nutritional status of the elderly (18–20). MNA consists of 18 questions, three of which are based on anthropometric measurement.

Using this diagnostic tool, the evaluation of the patient's nutritional adequacy is carried out in two stages: In the first stage, the first 6 questions of MNA are asked to the patient and the patient's score is calculated in line with the patient's responses. In the second stage, if the patient's score is 11 points or below, the total score is calculated by asking the remaining 12 questions; if it is not, the evaluation is terminated because the patient has no risk of malnutrition. Scoring of the screening tool is done over 30 points. The patient's score of 24 and above is considered to be "no risk of malnutrition", 17-23.5 is considered as "risk of malnutrition" or below 17 is considered as "malnutrition" (6,19,21–23).

Statistical Evaluation

The data were evaluated in the IBM SPSS Statistics Standard Concurrent User V 25 (New York, IBM Corp., USA Armonk) statistical packaged software. Descriptive statistics were stated as percentage (%), number of units (n), mean±standard deviation ($\bar{X}$±ss), median (M), 25th Percentage (Q1), 75th Percentage (Q3). The normal distribution of the data expressing numerical variables were evaluated with Q-Q graphics and Shapiro-Wilk normality test. The homogeneity of the variances was evaluated via Levene's test. In the variables with no normal distribution, two-group comparisons were made with the Mann-Whitney U test. For the normally distributed age variable, intergroup comparison was determined by one-way analysis of variance. For the variables that did not have a normal distribution, intergroup comparisons were performed with Kruskal-Wallis analysis in more than two groups. If there was a difference according to the Kruskal-Wallis analysis result, the multiple comparison test, Dunn-Bonferroni test, was used. The relationship between age and MNA total score was evaluated by Spearman's correlation analysis. In the intergroup comparison of the categorical variables, the exact method of the Fisher Chi-Square test was used in the rxc tables. If there a relationship was found in the chi-square test, the intergroup difference in the categories was determined via Bonferroni corrected two-proportions z test. $p<0.05$ was considered statistically significant.

Limitation of the Study

This study only reflects the patients in the hospital where it was carried out; it cannot be generalized for all the patients.

RESULTS

When the descriptive characteristics of the patients were evaluated, it was found that 51.2% of the patients hospitalized in palliative care were male, 95.9% were married, 52% were illiterate, 39.8% were cancer patients, 45.5% were nourished orally, 13% were nourished with percutaneous endoscopic gastronomy (PEG), 7.3% were nourished with a nasogastric catheter (NG) and 34.1% were nourished via total parenteral nutrition (TPN), and the mean age of the patients was 71.88±14.16 (**Table 1**).

Table 1. Distribution of personal characteristics

Descriptive Characteristics	N	%
Gender		
Female	60	48.8
Male	63	51.2
Marital status		
Married	118	95.9
Single	5	4.1
Educational level		
Illiterate	64	52.0
Literate	20	16.3
Primary education	29	23.6
High school	8	6.5
Undergraduate/graduate	2	1.6
Disease diagnosis		
Cancer	49	39.8
Heart failure	14	11.4
Diabetes	7	5.7
Cerebrovascular	18	14.6
Alzheimer	25	20.3
Others	10	8.1
Disease duration		
Less than a year	42	34.1
1-5 year	51	41.5
6-10 year	15	12.2
11 years and over	15	12.2
Income status		
Poor	32	26.0
Moderate	86	69.9
Well	5	4.1
Feeding type		
Oral	56	45.5
PEG	16	13.0
NG	9	7.3
TPN	42	34.1
Total	123	100.0
Mean current age	$\bar{X}$±SD	
	71.88± 14.16	

PEG: Percutaneous endoscopic gastronomy, NG: Nasogastric catheter, TPN: Total parenteral nutrition

When the nutritional status of the patients was evaluated, it was found that 3.3% (n=4) of the patients hospitalized in palliative care had no malnutrition risk, 7.3% (n=9) had a malnutrition risk and 89.4% (n=110) had malnutrition (**Figure 1**).

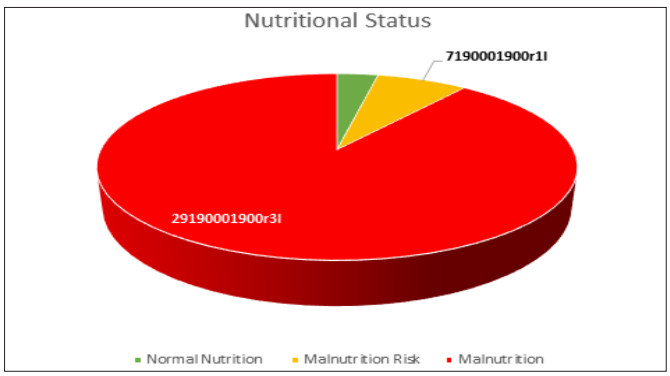

Figure 1. Nutritional status of patients (n=123)

When we evaluated the effect of patients' individual characteristics on the nutritional status, it was found that patient's age, gender, marital status, educational level, income status and disease diagnosis and duration were not important variables in the development of malnutrition. Besides, the patient's diet was found to play a significant role in the nutritional status. It was discovered that the risk of malnutrition was higher in those nourished orally compared to the TPN group (**Table 2**). Additionally, there was no statistically significant relationship between age and MNA total by Spearman's Correlation Analysis (rho=-0.15; p=0.11).

When we evaluate the effect of patient characteristics on nutritional status according to the percentage value including the MNA score of the patients, it was revealed that patient's age, gender, marital status, educational level, income status and duration of disease were not important variables in malnutrition development, and the patient's diet and diagnosis of the disease played a role ($p<0.05$). In the evaluation, it was found that the presence of malnutrition was higher in cancer patients compared to Alzheimer's patients and those nourished with PEG, NGS and TPN compared to those nourished orally (**Table 3**).

Table 2. Nutrition distribution according to the descriptive characteristics of patients (N=123)

Descriptive Characteristics	Normal Nutrition N=4		Malnutrition Risk N=9		Malnutrition N=110		Test Statistics	
	N	%	N	%	N	%	χ2	p
Gender							2.07	0.34
Female	1	1.7	6	10.0	53	88.3		
Male	3	4.8	3	4.8	57	90.5		
Marital status							0.62	1.00
Married	4	3.4	9	7.6	105	89.0		
Single	0	0.0	0	0.0	5	100.0		
Educational level							7.82	0.39
Illiterate	1	1.6	5	7.8	58	90.6		
Literate	0	0.0	1	5.0	19	95.0		
Primary education	3	10.3	3	10.3	23	79.3		
High school	0	0.0	0	0.0	8	100.0		
Undergraduate/graduate	0	0.0	0	0.0	2	100.0		
Disease diagnosis							7.22	0.72
Cancer	3	6.1	5	10.2	41	83.7		
Heart failure	1	7.1	1	7.1	12	85.7		
Diabetes	0	0.0	1	14.3	6	85.7		
Cerebrovascular	0	0.0	0	0.0	18	100.0		
Alzheimer	0	0.0	1	4.0	24	96.0		
Others	0	0.0	1	10.0	9	90.0		
Disease duration							1.28	1.00
Less than a year	1	2.4	3	7.1	38	90.5		
1-5 year	2	3.9	4	7.8	45	88.2		
6-10 year	1	6.7	1	6.7	13	86.7		
11 years and over	0	0.0	1	6.7	14	93.3		
Income status							3.01	0.50
Poor	0	0.0	2	6.3	30	93.8		
Moderate	4	4.7	6	7.0	76	88.4		
Well	0	0.0	1	20.0	4	80.0		
Feeding type							13.81	0.04
Oral	3	5.4	9^{a}	16.1	44^{a}	78.6		
PEG	0	0.0	0^{ab}	0.0	16^{ab}	100.0		
NG	0	0.0	0^{ab}	0.0	9^{ab}	100.0		
TPN	1	2.4	0^{b}	0.0	41^{b}	97.6		
	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	F	p
Age	62.75	19.31	68.22	11.57	72.51	14.14	1.247	0.291

a, b superscripts show differences between groups within the same column.; χ2 : Chi-square, F:Anova, PEG: Percutaneous endoscopic gastronomy, NG: Nasogastric catheter, TPN: Total parenteral nutrition

Table 3: Malnutrition effect of patient features according to the percentage value with MNA score (N=123)

Descriptive Characteristics	Median Value	25.Percentage Value	75.Percentage Value	Test Statistics	
Gender				z=0.877	p=0.381
Female	5.50	2.50	9.25		
Male	4.50	2.12	7.00		
Marital status				z=0.032	p=0.974
Married	5.50	2.50	8.00		
Single	4.50	2.62	9.37		
Educational level				H=2.348	p=0.672
Illiterate	5.50	2.00	8.00		
Literate	4.50	3.00	6.50		
Primary education	7.50	0.50	11.00		
High school	3.50	1.50	5.25		
Undergraduate/graduate	4.50	3.50	5.50		
Disease diagnosis				H=18.540	p=0.002
Cancer	4.75[ab]	1.00	7.50		
Heart failure	4.50[ab]	4.00	10.00		
Diabetes	1.00[b]	0.00	5.50		
Cerebrovascular	4.00[ab]	3.87	6.375		
Alzheimer	6.50[a]	1.25	10.00		
Others	6.40[ab]	4.00	7.00		
Disease duration				H=5.087	p=0.166
Less than a year	6.00	4.00	8.00		
1-5 year	3.50	1.00	9.12		
6-10 year	7.00	1.12	9.75		
11 years and over	4.50	0.50	7.37		
Income status				H=4.077	p=0.130
Poor	6.25	3.75	8.25		
Moderate	4.50	1.00	8.00		
Well	8.00	4.50	13.37		
Feeding type				H=31.295	p<0.001
Oral	7.25[a]	5.50	12.00		
PEG	1.00[b]	0.00	4.50		
NG	3.00[b]	0.50	5.87		
TPN	4.00[b]	1.00	6.00		

[a,b]: superscripts show differences between groups within the same column. PEG: Percutaneous endoscopic gastronomy. NG: Nasogastric catheter. TPN: Total parenteral nutrition

DISCUSSION

Despite recent medical progresses, malnutrition remains an important and quite common problem in developed countries (24,25). Palliative care patients are known to be vulnerable to malnutrition-related outcomes such as prolonged hospital stay, increased risk of falling, admission to high-level care, decrease in physical function, low quality of life, increased risk of life-threatening complications and mortality (25–27). In the study conducted by Çınar et al. (28) it was determined that 57.4% of palliative care patients had malnutrition and 27.8% had a risk of malnutrition. In our study, we showed that malnutrition was an important issue in palliative care patients since 89.43% of our subjects were found to have malnutrition in terms of nutritional evaluation (**Table 2**). Besides, it was revealed that diet and malnutrition were related. The risk of malnutrition was found to be higher in those with oral nourishment than in the TPN group. On the other hand, the presence of malnutrition was found higher in those nourished with TPN than the ones with an oral diet (**Table 2**). The results we obtained from the study were found to comply with the literature (8,29–32).

Malnutrition develops due to decreased dietary intake, increased nutritional requirements or impaired ability to use or absorb nutrients (30,33). When the literature is examined, it was seen that the rate of malnutrition increased with age, (6,21,23,25) and nutritional deficiency in the elderly in the community was found to be around 60% (31). In our study, it was found that there was no statistically significant difference between the nutritional status and age (**Table 3**), gender, educational status, marital status, income status, and disease duration according to the MNA scale, however, the malnutrition rate was higher in elderly patients (**Table 2**). In another study conducted with palliative care patients in our country, the malnutrition rate was higher in patients above the age of 90, but there was no statistically significant relationship between age and nutritional status (31). In a prospective study conducted with elderly cancer patients, patients with low MNA levels were found to have a shorter survival time (34). For this reason, it is necessary to be more careful in terms of malnutrition especially in elderly and patient groups in need of palliative care.

Malnutrition is common in most patients at an advanced cancer stage (11). Malnutrition in this patient group results from an inflammatory condition that causes anorexia and thus excessive weight loss (32). It is known that anorexia, weight loss and muscle loss, which are called cancer cachexia, are present in 80% of end-stage cancer patients (11). As cancer patients are reported to experience weight loss together with the diagnosis, malnutrition is very common in this patient group (32). In other studies on malnutrition, it has been observed that the malnutrition risk and incidence of malnutrition are substantially high in cancer patients (35–38). Considering the difference between the diagnosis and nutritional status of the in-patients in the palliative care unit was reviewed in our study, it was found that cancer patients had higher malnutrition levels than patients in the other group and there was a statistically significant difference between the diagnosis of the disease and malnutrition. Malnutrition, which is common in cancer patients, has a great effect on quality of life and survival (39). In a systematic study investigating the effect of various factors on malnutrition in cancer patients, it has been reported that the location of the tumor and the stage of the disease have an effect on malnutrition, therefore, early nutritional screening is important for the course of cancer (40). Balanced and regular nutrition of the patients is important in cancer patients because of the disease itself and/or treatment methods (8). In this respect, nurses should organize the diet lists of cancer patients specifically to the patients under the control of dieticians and follow them.

Malnutrition has medical and economic importance in hospitalized patients (41). Malnutrition causes weakness-sensitivity and/or dependency, worsens the patient's condition, contributes to the development of morbidity, leads to longer hospital stay and decreases quality of life (25,41). Besides, it is also correlated with the worsening prognosis of the underlying diseases and increases the risk of death (25). Early diagnosis can enable earlier intervention, improved results and better quality of life. For this reason, nutritional screening that leads to the determination of etiological factors is a necessary step (25). Nutritional status should be evaluated early and regularly during the treatment via appropriate tools (3). The nurse plays a crucial role in recognizing changes in the patient's condition and managing symptoms that influence the patient's nutrition (1). Healthcare professionals should recognize the risk of malnutrition early in the patients in the palliative care unit and initiate nutritional support early by providing the patients and families with adequate nutritional training and counseling especially in the early period for an ideal patient management (3,5). Effective interactions between the patient, caregivers and healthcare team will also fulfill the specific nutritional needs of each patient by increasing the chances of solving the nutritional problems, therefore, help with improving the quality of life (3).

CONCLUSION

Inadequate food intake and weight loss are widely observed in patients especially towards the end of life and are perceived as a source of distress for patients and their families. However, the effects of malnutrition are still ignored, and therefore, malnutrition is not considered as a definitive diagnosis. Moreover, malnutrition is rarely documented in medical reports, and its negative effects are not adequately treated in general. The main reason for this ignorance is the inadequate training of physicians and nurses on clinical nutrition and the lack of sensitivity of the hospital personnel towards the problem of malnutrition. Additionally, it is seen that nursing studies focusing on the nutritional problem of palliative care patients are limited. It is recommended to develop models and conduct necessary studies on this issue. Furthermore, it is recommended to determine and frequently review the nutritional levels and requirements of the patients monitored in the palliative care unit by using screening tests, and to provide the patients with nutritional support according to the results obtained.

ETHICAL DECLARATIONS

Ethics Comittee Approval: Before the research, ethical approval (Permission Granted: 12.03.2019, Decision No: E.4480) and institutional permission from the hospital where the research was conducted were obtained.

Informed Consent: Verbal and written consent was obtained from the patients included in the study by giving the patients included in the research necessary explanations.

Referee Evaluation Process: Externally peer-reviewed.

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